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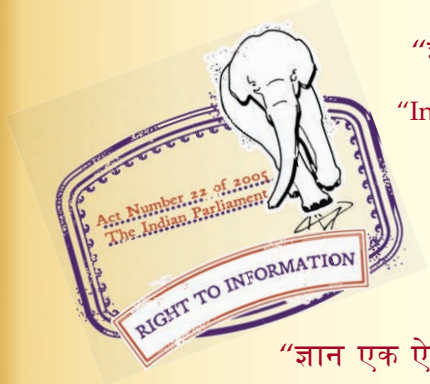

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SPECIFICATION FOR RIGID LIFERAFTS

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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SPECIFICATION FOR RIGID LIFERAFTS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 2 June 1966, after the draft finalized by the Marine Engineering and Shipbuilding Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 This standard is based on the statutory rules, and the provisions of the International Convention for the Safety of Life at Sea, 1960.

0.3 Rigid liferaft is one of the life saving appliances required to be fitted on board ships, and is designed to carry persons in water.

0.4 Notwithstanding what is stated in this standard, life saving appliances carried or fitted on board merchant navy ships shall conform to the statutory rules in this behalf issued under the Merchant Shipping Act, 1958, with amendments and shall be subject to the approval of the Government of India.

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1. SCOPE

1.1 This standard gives the constructional requirements, equipment to carry and tests for rigid liferafts.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Lifelines — These are grab lines fitted all round and on the inside of the liferafts, in such a manner, as to provide equal number of loops, corresponding to the number of persons the liferaft is approved to carry.

2.2 Quoit — A buoyant ring used for rescue work.

2.3 Painter — A suitable length and size of rope one end of which is attached to the liferaft.

2.4 Sea Anchor — *See* IS : 3573-1966*.

*Specification for sea anchors for lifeboats and liferafts.

3. DESCRIPTION

3.1 Liferaft, which is normally rectangular in shape, is built up of approved timber with buoyancy cases, or other approved buoyant materials, fixed at suitable positions and properly covered against damage. Launching pads are provided in the middle, and/or in the after portion of the ship, so that these may easily be released from their launching pads and pushed into the water in case of emergency.

3.1.1 A typical schematic diagram of a liferaft with the sailing gear in position is shown in Fig. 1.

4. REQUIREMENTS

4.1 Every rigid liferaft shall be so constructed that, when dropped into the water from its stowed position, neither the liferaft nor its equipment shall be damaged.

4.2 Deck Area of Liferaft — The deck area of liferaft for the purpose of this standard shall be the area within that part of the liferaft which affords protection to its occupants.

4.2.1 The deck area shall be at least 3 720 cm^2 for every person, the liferaft is permitted to carry. The deck area shall be so constructed as to prevent, as far as practicable, the ingress of water, and it shall effectively carry the occupants out of water.

4.3 The total weight of a liferaft and its equipment carried in passenger ships shall not exceed 180 kg. Liferafts carried in cargo ships may exceed 180 kg in weight, if they are capable of being launched from both sides of the ship or, if provision exists for putting them into the water mechanically.

4.4 The liferaft shall have at least 96 dm^3 of air cases, or equivalent buoyancy, for each person it is permitted to carry. The air cases or equivalent buoyant material shall be placed as near as possible to the sides of the raft.

4.4.1 Where weight of the liferafts exceeds 137 kg suitable handles of rungs shall be fitted.

4.5 The liferaft shall be fitted with a cover or equivalent arrangement of a highly visible colour, which shall be capable of protecting the occupants against injury from exposure when floating either way up.

4.6 The equipment of the liferaft shall be so stowed, as to be readily available when floating either way up.

4.7 At all times, the liferaft shall be effective and stable when floating either way up.

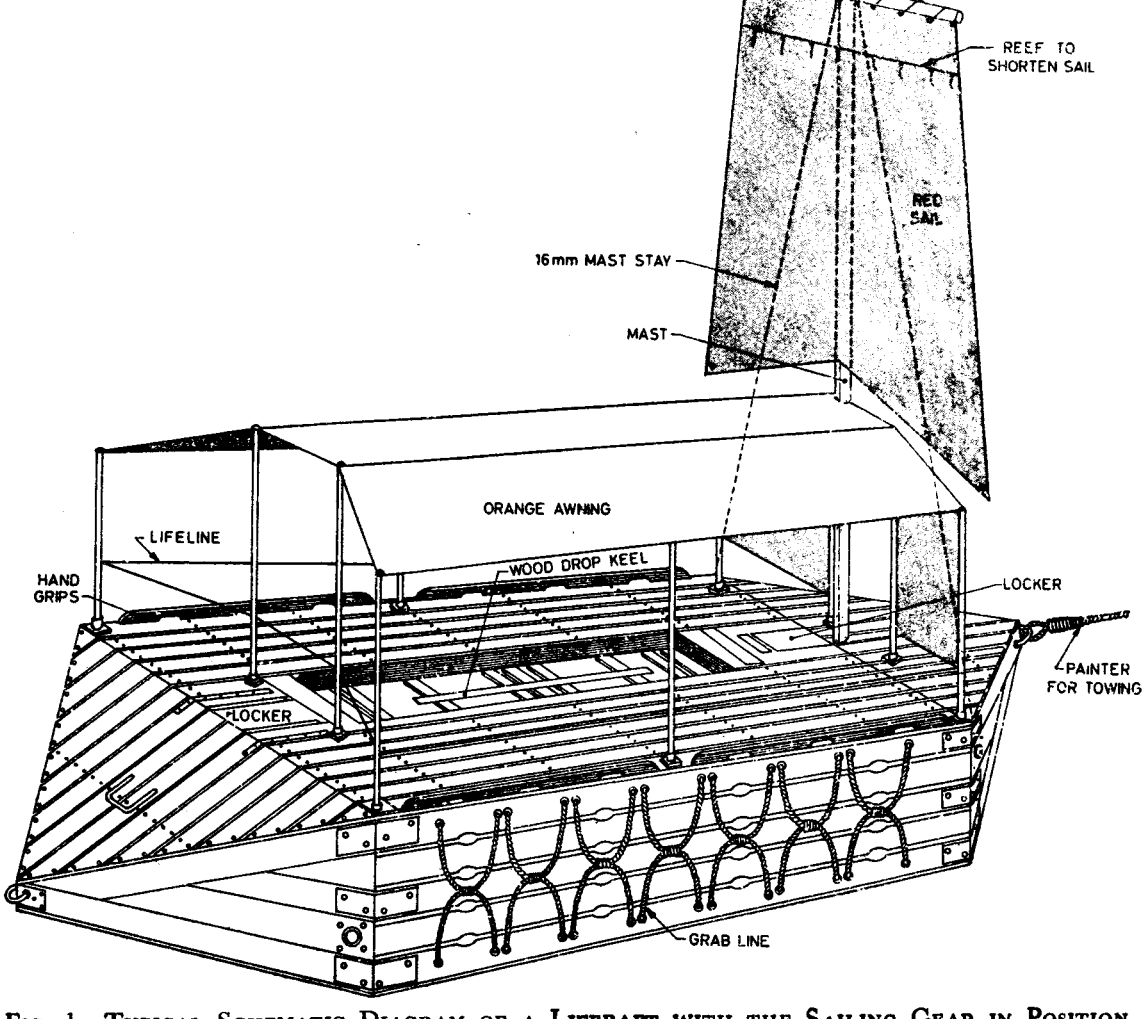

FIG. 1 TYPICAL SCHEMATIC DIAGRAM OF A LIFERAFT WITH THE SAILING GEAR IN POSITION

4.8 The liferaft shall have a painter attached, and a lifeline securely becketed round the outside. A lifeline shall also be fitted around the inside of the raft.

4.8.1 Lifeline (grab line) shall be fitted around the raft in a manner as to provide a number of equal loops corresponding to the number of persons for whom the apparatus is certified to carry.

4.8.2 Each loop shall have a cork, light wood float or other buoyant material to provide as a hand hold and the depth of loops with hand holds, when wet, shall not be less than 150 mm and more than 200 mm.

4.9 The liferaft shall be fitted at each opening with efficient means to enable persons in the water to climb on board.

4.10 The liferaft shall be so constructed as not be affected by oil or oil products.

4.11 A buoyant light of the electric battery type shall be attached to the liferaft by a lanyard.

4.12 The liferaft shall be fitted with arrangements enabling it to be readily towed.

4.13 Liferafts shall be so stowed as to float free in the event of the ship sinking.

5. EQUIPMENT

5.1 The normal equipment for every liferaft shall consist of the following:

a) One buoyant rescue quoit, attached to at least 30 metres of buoyant line;

b) Liferafts, certified to accommodate not more than 12 persons, shall carry one knife and one baler. Liferafts, which are designed to accommodate 13 persons or more, shall carry two knives and two balers;

c) Two sponges;

d) Two sea-anchors, one permanently attached to the liferaft and one spare;

e) Two paddles;

f) One repair outfit capable of repairing buoyancy compartments;

g) Three tin-openers;

h) One approved first-aid outfit in a waterproof container;

j) One rustproof graduated drinking vessel;

k) One waterproof electric torch suitable for signalling in the morse code together with one spare set of batteries and one spare bulb in a waterproof container;

m) One daylight signalling mirror and one signalling whistle;

n) Two parachute distress signals of an approved type, capable of giving a bright red light at a high altitude (*see* IS : 3580-1966*);

p) Six hand flares of an approved type, capable of giving a bright red light (*see* IS : 3580-1966*);

q) One set of fishing tackle;

r) Food ration, determined by the approving authority, for each person the liferaft is permitted to accommodate;

s) Watertight receptacles containing one and a half litres of fresh water for each person the liferaft is permitted to accommodate, of which half a litre per person may be replaced, by a suitable desalting apparatus capable of producing an equal amount of fresh water;

t) Six anti-seasickness tablets for each person the liferaft is certified to accommodate;

u) Instruction sheets on how to survive in the liferaft; and

v) One copy of the illustrated table of life-saving signals.

6. CONSTRUCTION

6.1 The framework of the liferafts shall be made of suitable approved hard timber well connected at the corners. The method of sewing the corners shall be such as to avoid fastenings to end grain timber.

6.2 The wood casings or sparring shall be of suitable soft wood.

6.3 The interior of the liferaft shall be well ventilated.

6.4 The liferafts shall be made with no projections which would prevent it from sliding easily over the ships' rail during launching.

7. NUMBER OF PERSONS

7.1 The number of persons permitted to be carried by each liferaft shall be the lower of the two as obtained in accordance with **4.2.1** and **4.4.**

8. CONSTRUCTION AND TEST OF THE AIR CASES

8.1 The air cases shall not exceed 1·2 metres in length.

8.2 If the length or the breadth of the air cases exceed 762 mm, all sides of the air cases shall be suitably stiffened by panels or stays.

*General requirements for distress signals for lifeboats and liferafts.

8.3 The air cases shall not be pierced for attachments to wood divisions or stays.

8.4 The air cases shall be protected against damage by properly fitted wood casing or sparring.

8.5 The fitting of the wood casing or sparring shall be such as to prevent movement of the casing and shall insulate it from contact with metal structure and fittings.

8.6 The buoyancy of air case shall not depend on inflation.

8.7 Material for Air Cases — Air cases shall be made of best quality copper muntz metal of weight not less than 5·5 kg/m² or of other approved durable material.

8.7.1 Zinc and galvanized iron shall not be used for the construction of air cases.

8.7.2 Copper and muntz metal air cases shall be made with hook joints not less than 10 mm in width, hammered and soldered.

8.7.3 Double hook joints shall be fitted to the longitudinal seems of air cases, but single hook joints should be provided for the ends.

8.7.4 Air cases shall be made with sheets which bear the stamp of the manufacturer's name or mark and weight in kg per square metre.

8.7.5 Air cases shall be coated with double boiled linseed oil conforming to IS : 77-1950* or a good varnish.

8.8 Measuring and Testing of Air Cases

8.8.1 Measurement and testing for watertightness of air cases shall be carried out as shown in Appendix A.

8.9 Equivalent Buoyant Material — The metal air cases may be substituted by suitable approved buoyant material.

9. DROP TEST

9.1 The liferafts shall be dropped, from the ship into the water, from a height, which is equivalent to that of the deck on which it is stowed, above the ship's light water line, but in no case the height of test shall be less than 6 m, 11 m, and 18 m depending on the class of ship.

9.1.1 On the completion of the drop test, the raft shall suffer no damage or its efficiency be in no way impaired.

*Specification for linseed oil, boiled, for paints.

10. MARKING

10.1 The liferafts shall be marked as follows:

Manufacturer's name
Identity No.
Deck area
Number of persons
Drop test details:
1) Height of drop test
2) Remarks
Number of persons for which the raft is approved to carry

10.2 The figures and letters denoting the number of persons that the raft is certified to carry shall be permanently cut or branded into the apparatus. In addition, the liferafts shall be marked with the name and port of registration of ship in which it is carried.

10.3 The initials and the seal of the approving authority shall be stamped immediately below the figure denoting the number of persons.

10.4 All the air cases shall indelibly be marked with their rated cubic capacity.

10.5 Liferafts may also be marked with the Standard Mark.

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

APPENDIX A

(*Clause* 8.8.1)

MEASURING AND TESTING FOR WATERTIGHTNESS OF AIR CASES

A-1. APPARATUS

A-1.1 The tank for submerging the air cases should have a horizontal internal area of 1·25 square metre (1·25 × 1 m) with a brass sliding scale, or a sliding scale made of any other non-corrodible material and marked in millimetres, attached to the inside surface of the tank, near the water level.

A-1.1.1 In case a tank with different dimensions is used, the horizontal area of the tank shall not be unduly large to avoid close scale markings.

A-1.2 A wooden grating with cast iron weights capable of submerging the air case under test.

A-2. PROCEDURE

A-2.1 The wooden grating with cast iron weights is suspended from a crane and immersed in water in the tank. The zero of the scale is adjusted to the new water level. The grating is then removed and the air case to be tested is lowered into the tank. The weights with the grating are lowered till the air case, grating and weights are fully submerged. The scale reading at the water level multiplied by 1·25 gives the volume of air case in cubic decimetres.

A-2.2 During the performance of this test, careful observation shall be made for air bubbles. Presence of air bubbles shows leakage of the air case.

A-2.2.1 Alternatively, the air cases may also be tested for watertightness by subjecting them to an air pressure of 70 gm/cm^2 and applying soap solution to indicate any leakage, if present. In this case the holes shall be filled up and soldered over after completion of the test.

A-3. PRECAUTIONS

A-3.1 The inspecting authority shall satisfy himself by testing a rectangular body of known volume, or in some other manner that the scale divisions are correct.

A-3.2 During each observation, it shall be seen that the scale is wetted properly to prevent the formation of the capillary curve and to enable correct readings of the water level to be made.

A-3.3 The length, breadth and depth and the ascertained volume of each air case should be recorded for reference purposes.

(*Continued from page* 2)

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